Claims:

1-49 (canceled)

50. An implantable medical device comprising:

an implantable medical device housing comprising a housing wall of biocompatible material defining an interior volume;

a battery comprising an electrode assembly housed in a battery case and capable of producing a temperature greater than a temperature T1, said battery mounted within said interior volume; and

heat absorbing material exhibiting a phase change at said temperature T1 and positioned external to said electrode assembly for reducing the amplitude of a temperature excursion of the implantable medical device housing to prevent significant damage to body tissue.

51. The device of claim 50 wherein said heat absorbing material is positioned within said battery case.

52. The device of claim 50 wherein said heat absorbing material is positioned between said battery case and said device housing.

53. The device of claim 52 wherein said battery case has a case wall outer surface, and wherein said heat absorbing material contacts said case wall outer surface.

54. The device of claim 52 further comprising:

an outer casing mounted within said interior volume; wherein

said battery is mounted within said outer casing; and

said heat absorbing material is contained between said battery case and said outer casing.

55. The device of claim 54 further comprising:

at least a second battery mounted within said outer casing.

56. The device of claim 54 wherein said outer casing is formed of a polymer.

57. The device of claim 52 further comprising:
a caddy containing said heat absorbing material and attached to said battery case.

58. The device of claim 50 further comprising a fibrous containment mat embedded in said heat absorbing material.

59. The device of claim 58 wherein said fibrous containment mat comprises dielectric fibers.

60. The device of claim 58 wherein said fibrous containment mat comprises Kevlar.

61. The device of claim 58 wherein said fibrous containment mat comprises fiberglass.

62. The device of claim 50 wherein said heat absorbing material comprises paraffin.

63. The device of claim 50 and further including dielectric spacers separating said battery case from said device housing.

64. The device of claim 50 wherein said battery is a rechargeable battery.

65. A device comprising:

a housing comprising a wall defining an interior housing volume;

a battery comprising an electrode assembly housed in a battery case and capable of producing a temperature greater than a temperature T1, said battery mounted within said interior volume with said battery case spaced from said housing; and

a heat absorber mounted adjacent to and thermally coupled to said battery case, said heat absorber comprising a heat absorbing material exhibiting a phase change at said temperature T1.

66. The device of claim 65 and further including dielectric spacers separating said battery case from said housing.

67. The device of claim 65 wherein said heat absorbing material is positioned within said battery case.

68. The device of claim 65 wherein said heat absorbing material is positioned between said battery case and said housing.

69. The device of claim 65 wherein said battery case has a case wall outer surface, and wherein said heat absorbing material contacts said case wall outer surface.

70. The device of claim 65 further comprising:

an outer casing mounted within said interior volume; wherein

said battery is mounted within said outer casing; and

said heat absorbing material is contained between said battery case and said outer casing.

71. The device of claim 70 further comprising:

at least a second battery mounted within said outer casing.

72. The device of claim 70 wherein said outer casing is formed of a polymer.

73. The device of claim 65 wherein said heat absorber further comprises:
a caddy containing said heat absorbing material and attached to said battery case.

74. The device of claim 65 wherein said heat absorber further comprises a fibrous containment mat embedded in said heat absorbing material.

75. The device of claim 74 wherein said fibrous containment mat comprises dielectric fibers.

76. The device of claim 74 wherein said fibrous containment mat comprises Kevlar.

77. The device of claim 74 wherein said fibrous containment mat comprises fiberglass.

78. The device of claim 65 wherein said heat absorbing material comprises paraffin.

79. The device of claim 65 wherein said heat absorbing material comprises polyethylene.

80. The device of claim 65 wherein said heat absorbing material comprises polypropylene.

81. The device of claim 65 wherein said battery is a rechargeable battery.

82. A method for containing heat generated by a battery having a battery case within a housing, comprising:

spacing the battery case from the housing;

providing high heat capacity material in thermal contact with the battery case and spaced from the housing; and

transferring the heat generated from the battery to the high heat capacity material in the form of latent heat of fusion of the high heat capacity material.

83. The method of claim 82, further comprising:

forming an electrode assembly; and then

mounting the high heat capacity material around the electrode assembly within the battery case and thermally coupled to the electrode assembly.

84. The method of claim 82, further comprising configuring the high heat capacity material to engage the outer surface of the battery case.

85. The method of claim 82, further comprising:

accommodating the high heat capacity material within a caddy; and

mounting the caddy to the outer surface of the battery case.

86. The method of claim 82, further comprising depositing the high heat capacity material on a fibrous mat.